

## Amendments to the Claims

- 1 1. (currently amended) A method for partitioning an image including a plurality of points into segments, comprising:
  - 3 selecting a set of base points in the image;
  - 4 initializing and emitting a wavefront from each base point;
  - 5 propagating each wavefront according to a speed function until a termination condition is satisfied to determine a corresponding final
  - 6 wavefront; and
  - 8 segmenting the image according to each final wavefront; and
  - 9 rendering the segmented image.
- 1 2. (original) The method of claim 1, further comprising:
  - 2 constructing a gradient image from the input image;
  - 3 constructing a variance image from the input image; and
  - 4 selecting each base point iteratively in order of least gradient and
  - 5 variance values in the respective gradient and variance images.
- 1 3. (original) The method of claim 2, in which a likelihood of selecting the base point is inversely proportional to the gradient and variance values.
- 1 4. (original) The method of claim 2, in which the gradient image and the variance image are constructed at hierarchical resolution levels.
- 1 5. (original) The method of claim 1, in which the initial wavefront is substantially circular.

- 1    6. (original) The method of claim 1, in which the speed function varies  
2    according to colors in the image.
  
- 1    7. (original) The method of claim 6, in which a speed of propagation  
2    increases for adjacent points having a similar color and decreases for the  
3    adjacent points having a dissimilar color.
  
- 1    8. (original) The method of claim 6, in which a speed of propagation  
2    increases for adjacent points having a low average gradient magnitude and  
3    decreases for the adjacent points having a high average gradient magnitude.
  
- 1    9. (original) The method of claim 6, in which a speed of propagation  
2    increases for adjacent points having a low gradient magnitude on the normal  
3    direction to the wavefront and decreases for the adjacent points having a  
4    high gradient magnitude on the direction normal to the wavefront.
  
- 1    10. (original) The method of claim 1, in which the termination condition is a  
2    color similarity of the points.
  
- 1    11. (original) The method of claim 1, in which the termination condition is  
2    an edge in the image.
  
- 1    12. (original) The method of claim 1, in which the termination condition is  
2    an arrival time of each wavefront.

- 1    13. (original) The method of claim 1, in which the speed function is
- 2    constant.
  
- 1    14. (original) The method of claim 1, in which the speed function is varying.
  
- 1    15. (original) The method of claim 1, in which the propagating is performed
- 2    iteratively using fast marching.
  
- 1    16. (original) The method of claim 15, further comprising:
  - 2       choosing  $\mathbf{x}^*$  as a point in a narrow band set of points with a smallest
  - 3       arrival time  $\psi(\mathbf{x}^*)$  of the wavefront;
  - 4       moving point  $\mathbf{x}^*$  from the narrow band set of points to a current
  - 5       segment;
  - 6       moving all neighboring points  $\mathbf{x}_j^*$  of the point  $\mathbf{x}^*$  into the narrow band
  - 7       set of points if the neighboring points are not in the narrow band set of
  - 8       points;
  - 9       updating the arrival time  $\psi(\mathbf{x}_j^*)$  for all the neighboring points of  $\mathbf{x}^*$ ,
  - 10      updating a color mean for the current segment;
  - 11      updating a color mean for the narrow band set of points;
  - 12      increasing a total number of points in the current segment; and
  - 13      updating a total number of points in the narrow band set of points.
  
- 1    17. (original) The method of claim 16, in which the color mean of the
- 2    current segment is  $S_K$ , and updated the color mean by  $S'_K = 1/N'_K [N'^{-1}_K S_K +$
- 3     $I(\mathbf{x}^*)]$ , where  $t$  is time, and  $N_K$  is the total number of points in the current
- 4    segment, and  $I$  is the image.

- 1 18. (original) The method of claim 16, in which the narrow band set of
- 2 points is the wavefront.
  
- 1 19. (original) The method of claim 16, in which the color mean of the
- 2 narrow band set of points is  $B'_K$ , and the color mean is updated by  $B'_K =$
- 3  $1/M_{IK} [M^{-1}KB_K - I(\mathbf{x}_j^*) + \sum_j^c I(\mathbf{x}_j)]$ , where  $M_K$  is the number of points in the
- 4 current narrow band set.
  
- 1 20. (original) The method of claim 16, in which the color mean  $S_K$  of the
- 2 current segment and the color mean of the narrow band set of points are used
- 3 to determine color similarity.
  
- 1 21. (original) The method of claim 16, in which a set of representative colors
- 2 for the current segment and a set of representative colors for narrow band set
- 3 of points are used to determine color similarity.